

WHAT IS CLAIM FOR:

1. A porous resilient organic polymer product comprising organic polymer particles having a plurality of open cell pores and internal surfaces which pores represent at least about 50% of the volume of the pores of the particles and having a non-spherical geometry, said particles produced by the process comprising forming an aqueous particle slurry comprising a major amount of water and a minor amount of said organic polymer particles and an internal surface modifier component said water being present in at least a part of the internal pores of said particles to provide resistance to particle compressibility and external to said particles to form a slurry, (2) subjecting the aqueous slurry to a cutting action by a contact with a plurality of cutting surfaces to reduce the mean particle size of the particles and distribute said surface modifier component on the internal surfaces and (3) recovering particles having reduced mean particle size and modified surfaces.

2. The product of Claim 1 wherein the open cell mean pore diameter is from about 0.075 microns to about 10 microns.

3. The product of Claim 1 wherein the reduced mean particle size is less than about 100 microns.

4. The product of Claim 1 wherein a surface active agent is present in the aqueous slurry.

5. The product of Claim 2 wherein a surface active is present in the aqueous slurry.

6. The product of Claim 1 wherein the porous organic polymer is selected from the group consisting of polypropylene, polyethylene, nylon and mixtures thereof.

7. The product of Claim 4 wherein the porous organic polymer is selected from the group consisting of polypropylene, polyethylene, nylon and mixtures thereof.

8. The product of Claim 5 wherein the porous organic polymer is selected from the group consisting of polypropylene, polyethylene, nylon and mixtures thereof.

9. A porous resilient organic polymer product comprising organic polymer particles having open cell pores and internal surfaces which pores represent at least about 50% of the volume of the pores of the particles and having a non-spherical geometry and containing a functional agent, said particles produced by the process comprising forming an aqueous particle slurry comprising a major amount of water and a minor amount of said organic polymer particles and an internal surface modifier component said water being present in at least a part of the internal pores of said particles to provide resistance to particle compressibility and external to said particles to form a slurry, (2) subjecting the aqueous slurry to a cutting action by a contact with a plurality of cutting surfaces to reduce the mean particle size of the particles and distribute said surface modifier component on the internal surfaces, (3) recovering particles of reduced mean particle size and internal pore water and (4) reloading the open cell pores with a functional agent.

10. The product of Claim 9 wherein the organic polymer particles are selected from the group consisting of polypropylene, polyethylene, nylon and mixtures thereof.

11. The product of Claim 9 wherein the functional agent is one or more agents suitable for use as additives in polymer products.

12. The product of Claim 9 wherein the functional agent is bioactive.

13. The product of Claim 10 wherein the organic polymer is polypropylene.

14. The product of Claim 11 wherein the organic polymer is polypropylene.

15. The product of Claim 12 wherein the organic polymer is polypropylene.

16. A free flowing porous resilient organic polymer powder comprising organic polymer particles having open cell pores and internal surfaces which pores represent at least about 50% of the volume of the pores of the particles and having a non-spherical geometry and containing a functional agent, said particles produced by the process comprising forming an aqueous particle slurry comprising a major amount of water and a minor amount of said organic polymer particles and an internal surface modifier component said water being present in at least a part of the internal pores of said particles to provide resistance to particle compressibility and external to said particles to form a slurry, (2) subjecting the aqueous slurry to a cutting action by a contact with a plurality of cutting surfaces to reduce the mean particle size of the particles and distribute said surface modifier component on the internal surfaces and (3) recovering particles of reduced mean particle size and internal pore water.

17. The product of Claim 16 wherein the organic polymer particles are selected from the group consisting of polypropylene, polyethylene, nylon and mixtures thereof.

18. The product of Claim 16 wherein the functional agent is one or more agents suitable for use as additives in polymer products.

19. The product of Claim 16 wherein the functional agent is bioactive.

20. The product of Claim 17 wherein the organic polymer is polypropylene.